QC ABSTRACT

NAME OF WORK: Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)

SL NO	Item Of Work	Name of Test	Frequency of Test/Quantity	Executed Quantity	Number of Tests Required	Number of Tests Conducted
		Materials				
1	Cement	Fineness by dry sieving	One Test		1	1
		Finess by Air permeablity method	One Test		1	1
		Density	One Test		1	1
		Standard Consistency	One Test		1	1
		Initial Setting time	One Test		1	1
		Final Setting time	One Test		1	1
		Soundness (Le Chatelier's Method)	One Test		1	1
		Compressive Strength	One Test		1	1
2	Coarse aggregate(40 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
3	Coarse aggregate(20 mm down size)	SIEVE ANALYSIS	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		Specific Gravity	One Test		1	1
		Bulk Density(Loose)	One Test		1	1
		Bulk Density(Compacted)	One Test		1	1
		Water Absorption	One Test		1	1
		Aggregate crushing Value	One Test		1	1
		Aggregate Impact Value	One Test		1	1
4	Fine aggregate	SIEVE ANALYSIS	One Test		1	1
		Water Absorption	One Test		1	1
		Specific Gravity	One Test		1	1
		Material finer than 75 micron	One Test		1	1
5	Block(400*150*200)	BLOCK DENSITY	One Test		1	1
		WATER ABSORPTION	One Test		1	1
		DIMENSION ANALYSIS	One Test		1	1
		COMPRESSIVE STRENGTH	One Test		1	1
6	KERB	Core Compressive strength	One Test		1	1
		Corrected Cylinder Compressive strength	One Test		1	1
		Equivalent Cube Compressive strength	One Test		1	1
7	Precast (100mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1

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8	Precast (250mm)	Core Compressive Strength	One Test		1	1
		Corrected Cylinder Compressive Strength	One Test		1	1
		Equivalent Cube Compressive Strength	One Test		1	1
9	PCC(M10)	Compressive Strength(7days and 28days)	3 sets /16-30 cum	20.2	6	6
10	WMM	Sieve Analysis	One Test		1	1
		Impact Value	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
11	DBM	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral Aggregate	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
12	BC	SIEVE ANALYSIS	One Test		1	1
		STRIPPING VALUE	One Test		1	1
		Flakiness Index	One Test		1	1
		Elongation Index	One Test		1	1
		IMPACT VALUE	One Test		1	1
		Specific gravity	One Test		1	1
		Water Absorption	One Test		1	1
		Marshal Stability	One Test		1	1
		Marshal flow	One Test		1	1
		Percent air Voids	One Test		1	1
		Percent Voids in mineral	One Test		1	1
		Percent Voids filled with Bitumen	One Test		1	1
		Density	One Test		1	1
		Gradation	One Test		1	1
13	BITUMEN	Ductility	One Test		1	1
		Softening Point	One Test		1	1
		Penetration	One Test		1	1
		Flash Point	One Test		1	1
		Fire Point	One Test		1	1
14	TACK COAT	Rate of spread	One Test		1	1

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BBMP, Bangalore

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2024-01-29-16** **Date: 16-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-12-23
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 269:2015 Ordinary Portland cement Specification , IS 4031 (Part 4,5):1988 IS 4031 Part 1 (RA 2021) DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, (RA 2018) Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, (RA 2019) Determination of Soundness, Clause 5, Clause 6 IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, (RA 2019) Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11, (RA 2019)DETERMINATION OF DENSITY , Clause 6
Date of test	:	14-12-23
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Sl.No.	Physical properties	Results	Requirement as per IS 269:2015
1	Fineness by dry sieving (%)	2.15	–
2	Finess by Air permeablity method (m^2/kg,Min)	282.2	225m^2/kg, Min
3	Density (gm/cc)	3.15	–
4	Standard Consistency (%)	29.0%	Not specified
5	Initial Setting time	185 minutes	Not less than 30 minutes
6	Final Setting time	280 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	1.5mm	Not more than 10 mm

* The results obtained are satisfactory as per standard requirements.

Note:

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All information furnished by Agency/Representative

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Authorized Signatory
Technical Manager

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TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2024-01-29-16** **Date: 11-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises. Smt. Shashikala. Jinkebachahalli. Doddatumakuru. Doddaballapura. Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-12-23
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 269:2015 Ordinary Portland cement Specification , IS 4031 (Part 4,5):1988 IS 4031 Part 4, (RA 2019) Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, (RA 2019) Determination of Compressive Strength, Clause 6
Date of test	:	14-12-23
Environmental Conditions during test	:	Temperature: 26°C Humidity: 72%

Compressive Strength			
Sl.No.	**Physical properties**	**Results**	**Requirement as per IS 269:2015**
1	3 Days	29.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	54.5N/mm^2	Not less than 53 N/mm^2

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Technical Manager

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2024-01-29-16** **Date: 16-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	13-12-23
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	13-12-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	374	374	2.5	97.5	90-100
3	20 mm	6738	7112	47.4	52.6	30-70
4	10 mm	5274	12386	82.6	17.4	10-35
5	4.75 mm	2081	14467	96.4	3.6	0-5
6	Pan	533	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2024-01-29-16** **Date: 16-12-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.7	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	11.5	
3	Specific Gravity	2.65	–
4	Bulk Density(Loose) (Kg/l)	1.49	–
5	Bulk Density(Compacted) (Kg/l)	1.51	–
6	Water Absorption(%)	0.25	–

* The results obtained are satisfactory as per standard requirements.

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Technical Manager

Assistant Executive Engineer
Kengeri Sub Division
BCMP, Bangalore

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2024-01-29-16** **Date: 15-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-12-23
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	13-12-23

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	159	159	3.2	96.8	90-100
3	10 mm	2541	2700	54.0	46.0	25-55
4	4.75 mm	2117	4817	96.3	3.7	0-10
5	Pan	183	5000	100	0	-

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2024-01-29-16** **Date: 15-12-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	11.6	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	14.8	
3	Specific Gravity	2.62	_
4	Bulk Density(Loose) (Kg/l)	1.50	_
5	Bulk Density(Compacted) (Kg/l)	1.55	_
6	Water Absorption(%)	0.28	_
7	Aggregate crushing Value(%)	26.6	Max 30% for Aggregates to be used in concrete for wearing Surface. In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	24.3	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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Technical Manager

Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Format No: CP/TF/01

TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2024-01-29-16** **Date: 15-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	13-12-23
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2021 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	13-12-23
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	35	35	3.5	96.5	90-100	90-100	90-100	95-100
3	2.36 mm	172	207	20.7	79.3	60-95	75-100	85-100	95-100
4	1.18 mm	116	323	32.3	67.7	30-70	55-90	75-100	90-100
5	600 micron	201	524	52.4	47.6	15-34	35-59	60-79	80-100
6	300 micron	217	741	74.1	25.9	5-20	8-30	12-40	15-50
7	150 micron	183	924	92.4	7.6	0-10	0-10	0-10	0-15
8	Pan	76	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2024-01-29-16** **Date: 15-12-23**

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.5	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	7.6	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2024-01-29-16** **Date: 23-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-12-23
Sample Type /Size	:	Precast Cover Slab (100mm Thick)
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test	:	19/12/2023
Grade of Slab	:	M15

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	77.51	100.48	1.116	4718	80.9	17.1	15.9	19.9
2	Cover Slab-2	77.64	100.52	1.122	4733	82.3	17.4	16.2	20.2
3	Cover Slab-3	77.28	100.51	1.118	4690	81.5	17.4	16.2	20.2

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WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

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TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2024-01-29-16** **Date: 23-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13. (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-12-23
Sample Type /Size	:	Precast Cover Slab (250mm Thick)
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test	:	19/12/2023
Grade of Slab	:	M15

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(kg)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	77.42	250.34	3.114	4707	84.2	17.9	16.6	20.8
2	Cover Slab-2	77.37	250.16	3.132	4701	81.6	17.4	16.1	20.2
3	Cover Slab-3	77.89	250.55	3.115	4764	83.9	17.6	16.4	20.5

* The results obtained are satisfactory as per standard requirements.

Note:

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TEST REPORT OF CEMENT CONCRETE KERB STONE

Lab ID	:	**CP-2024-01-29-16** **Date: 23-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-12-23
Sample Type /Size	:	CC Kerb Stone/ 600*150*300mm
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete
Date of test	:	19/12/2023
Grade of Kerb	:	M15

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	Kg	(Sq.mm)	(KN)	(N/mm2)	(N/mm2)	(N/mm2)
1	A	77.01	150.25	2.864	4657	83.2	17.9	17.9	22.3
2	B	77.81	150.63	2.793	4754	81.6	17.2	17.2	21.5
3	C	77.59	150.72	2.815	4727	85.1	18.0	18.0	22.5

* The results obtained are satisfactory as per standard requirements.

Note:

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT ON PHYSICAL REQUIREMENTS OF SOLID CONCRETE BLOCKS

Lab ID	:	CP-2024-01-29-16 Date: 23-12-23
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	19-12-23
Sample Type/Size	:	Solid concrete blocks size (400X150X200)mm
Reference to BIS codes	:	IS : 2185 (Part 1) : 2005(RA 2020) Concrete Masonry Specification Part 1:Hollow and Solid Concrete Blocks (Dimensions -Annex-B, Clause 9.2 and 10 , Block density Annex -C Clause 9.3 and10, Compressive strength Annex -D Clause 9.4 and 10, Water absorption Annex -E Clause 9.5 and 10)
Date of test	:	19-12-23

BLOCK DENSITY:

Sl. No.	Measurement of overall Dimensions of Individual Blocks			Overall Volume of the Block in Cubic Centimetres	Weight of Oven Dried Block in Kilograms to the nearest 10 Gram	Block Density in Kg/cum*10^6	Avg.Block Density in (Kg/cum)	As per IS 2185(Part 1) :2005 (RA 2010)
	Length	Breadth	Height					
	mm	mm	mm	(Cm^3)	Kg	Kg/m^3	Kg/m^3	
1	405	149	203	12250	22.822	1863.0	1812.4	Not less than 1800Kg/m^3
2	404	153	198	12239	21.315	1741.6		
3	403	150	203	12271	22.489	1832.6		

WATER ABSORPTION:

Sl. No.	Wet weight after water absorption	Dry weight (Oven dry)	Water Absorption	Avg.Water Absorption	As per IS 2185(Part 1):2005 (RA 2010)
	kg	kg	%	%	
1	24.91	23.69	4.89	4.25	Shall not be more than 10% by mass
2	25.57	24.48	4.28		
3	24.44	23.57	3.59		

Assistant Executive Engineer
Kothigehalli Sub Division
BBMP, Bangalore

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Lab ID : CP-2024-01-29-16 Date: 23-12-23

DIMENSION ANALYSIS

Sl.no	Length mm	Breadth mm	Height mm	Requirement as per IS 2185(Part 1):2005
1	400	150	202	Length : ± 5mm Breadth : ± 3mm Height : ± 3mm
2	403	150	203	
3	403	153	200	
4	402	152	203	
5	399	153	199	
6	402	149	203	
7	400	152	201	
8	401	153	201	
9	402	152	203	
10	400	152	199	
11	402	150	203	
12	402	151	203	
13	402	152	199	
14	400	150	203	
15	399	151	203	
16	399	151	202	
17	400	150	200	
18	401	153	202	
19	402	152	202	
20	400	150	199	
Average of 20	**401**	**151**	**202**	

Executive Engineer
Yelahanka Sub Division
BBMP, Bangalore

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Lab ID : **CP-2024-01-29-16** **Date: 23-12-23**

COMPRESSIVE STRENGTH:

Sl. No.	Size of solid block		Area	Failure Load	Compressive strength	Average Compressive strength
	Length	Breadth				
	mm	mm	(mm^2)	(KN)	N/mm^2	(N/mm^2)
1	400	150	60191	252.8	4.2	4.2
2	403	150	60464	256.3	4.2	
3	403	153	61533	255.0	4.1	
4	402	152	61179	256.2	4.2	
5	399	153	61005	253.7	4.2	
6	402	149	59917	253.3	4.2	
7	400	152	60791	254.7	4.2	
8	401	153	61268	253.2	4.1	

As per IS Requirements (Table 2, Clause 5.1, 5.2 and 9.4)

Compressive strength		
Grade	Minimum average	Minimum Individual units.
C (5.0)	5.00 N/mm^2	4.00 N/mm^2
C (4.0)	4.00 N/mm^2	3.20 N/mm^2

* The Results Obtained are Satisfactory as per Standard Requirements

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Authorized Signatory
Technical Manager

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2024-01-29-16** **Date: 02/01/2024**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)

Agency : M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.

Customer's Reference : BBMP/EE/BTP/WO/02/2023-24

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 28-12-23

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M10 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5

Date of test : 02/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	02/01/2024	150.17 X 150.47 X 150.71	22597	8.663	161.4	7.1	7.2
2	PCC	M10	26/12/2023	02/01/2024	150.52 X 150.09 X 150.34	22591	8.102	163.7	7.2	
3	PCC	M10	26/12/2023	02/01/2024	150.70 X 150.16 X 150.27	22630	8.013	161.7	7.1	

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore

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Authorized Signatory
Technical Manager

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2024-01-29-16** **Date: 23/01/2024**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M10 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	23/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	23/01/2024	150.84 X 150.45 X 150.27	22693	8.981	266.8	11.8	11.9
2	PCC	M10	26/12/2023	23/01/2024	150.47 X 150.64 X 150.86	22666	8.399	270.5	11.9	
3	PCC	M10	26/12/2023	23/01/2024	150.82 X 150.29 X 150.85	22666	8.471	274.4	12.1	

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Authorized Signatory
Technical Manager

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2024-01-29-16** **Date: 02/01/2024**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M10 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	02/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	02/01/2024	150.29 X 150.07 X 150.31	22554	8.877	170.7	7.6	7.5
2	PCC	M10	26/12/2023	02/01/2024	150.99 X 150.03 X 150.67	22654	8.685	168.4	7.4	
3	PCC	M10	26/12/2023	02/01/2024	150.15 X 150.25 X 150.75	22560	8.378	171.9	7.6	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2024-01-29-16** **Date: 23/01/2024**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M10 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	23/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	23/01/2024	150.66 X 150.32 X 150.14	22647	8.521	272.9	12.0	12.2
2	PCC	M10	26/12/2023	23/01/2024	150.79 X 150.43 X 150.01	22683	8.211	277.2	12.2	
3	PCC	M10	26/12/2023	23/01/2024	150.45 X 150.62 X 150.41	22662	8.528	279.2	12.3	

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2024-01-29-16** **Date: 02/01/2024**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M10 / 7 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	02/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	02/01/2024	150.48 X 150.91 X 150.66	22710	8.208	180.8	8.0	7.6
2	PCC	M10	26/12/2023	02/01/2024	150.56 X 150.40 X 150.83	22643	8.961	169.0	7.5	
3	PCC	M10	26/12/2023	02/01/2024	150.78 X 150.85 X 150.59	22746	8.619	166.2	7.3	

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BBMP, Bangalore

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Format No: CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID	:	**CP-2024-01-29-16** **Date: 23/01/2024**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Customer ID	:	PCC
Sample Type /Size	:	150X150X150 mm
Sample grade/Age	:	M10 / 28 Days Compressive Strength
Reference to BIS codes	:	IS: 516 - 1959 (RA 2018) Methods of Tests for Strength of Concrete Cl.5
Date of test	:	23/01/2024

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M10	26/12/2023	23/01/2024	150.15 X 150.76 X 150.48	22636	8.153	277.8	12.3	12.4
2	PCC	M10	26/12/2023	23/01/2024	150.85 X 150.71 X 150.05	22734	8.468	281.4	12.4	
3	PCC	M10	26/12/2023	23/01/2024	150.79 X 150.81 X 150.76	22740	8.533	282.4	12.4	

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

****End of Report****

TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 30-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Type of Mix	:	WMM (Wet Mix Macadam)
Date of Test	:	28-12-23
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	% Cumulative Weight Retained	% Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

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Page 1/1
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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-RW-2024-01-29-16**	**Date: 30-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)	
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.	
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	28-12-23	
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)	
Date of Test	:	28-12-23	

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

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Kodigehalli Sub Division
BBMP, Bangalore

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Authorized Signatory
Technical Manager

End of Report

DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 30-12-23**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	28-12-23
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of Test	:	28-12-23

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

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Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore

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Format No: CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 04-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer's Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	02-01-24
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-2021, IS: 1202-1220(1978) (Reaffirmed-2019)
Date of Test	:	02-01-24

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**54**	Min 45mm
2	Softening Point, °C	**51.2**	Min. 47°C
3	Ductility, cm	**99**	Min. 40cm
4	Flash point, °C	**302**	Min. 220°C
	Fire point, °C	**314**	

* The results obtained are satisfactory as per standard requirements.

Note:-

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Assistant Executive Engineer
Kadugodi Sub Division
BBMP, Bangalore

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Authorized Signatory
Technical Manager

TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 08-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-01-24
Type of Mix	:	DBM-Plant (Dense Bituminous Macadam)
Date of Test	:	06-01-24
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Specification Limits as per MORTH specification Table 500-10 (grading -2)
37.5	0	0	0	100	100
26.5	250	250	5.00	95.0	90-100
19	350	600	12.00	88.0	71-95
13.2	450	1050	21.00	79.0	56-80
4.75	1750	2800	56.00	44.0	38-54
2.36	400	3200	64.00	36.0	28-42
0.3	1350	4550	91.00	9.0	7-21
0.075	250	4800	96.00	4.0	2-8
PAN	200	5000	0.00	0	0

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Assistant Executive Engineer
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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR DENSE BITUMINOUS MACADAM

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 09-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-01-24
Type of Mix	:	DBM (Dense Bituminous Macadam)
Date of Test	:	06-01-24

Table 500-6 : Physical Requirements fo Coarse Aggregate for Dense Bituminous Macadam

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	13.0	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	9.0		
Strength	Aggregate Impact Value	22.0	Maximum 27%	IS:2386 Part IV
Specific gravity	Specific gravity	2.58	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.38	Maximum 2%	IS:2386 Part III

* The results obtained are satisfactory as per standard requirements.

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Technical Manager

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 09-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	06-01-24
Type of Mix	:	DBM (Dense Bituminous Mecadam)
Date of Test	:	06-01-24

The results of the tests conducted on the Dense Bituminous Macadam mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.29	11.82	9KN(Min)
2	Marshal flow at 60°C, mm	3.54	3.87	2-4
3	Percent air Voids	4.56	4.17	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.54	14.76	13-15
5	Percent Voids filled with Bitumen(VFB %)	68.98	70.28	65-75
6	Density, g/cc	2.42	2.40	–

* The results obtained are satisfactory as per standard requirements.

Note:-

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Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 09-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	06-01-24
Type of Mix	:	DBM(Dense Bitumnous Macadam)
Date of Test	:	06-01-24

Type of Binder	:	60/70
% of Binder Used	:	4.5%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	9.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.0	2.0	98.2	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

Note:-
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TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM (IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2024-01-29-16**	**Date: 18-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.	
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)	
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.	
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24	
Source of Sample	:	Sample supplied by Agency	
Date of Receipt	:	17-01-24	
Type of Mix	:	DBM (Dense Bituminous Macadam)	
Date of Test	:	17-01-24	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.60	4.50
7	Average percentage	%	4.55	

Assistant Executive Engineer
Kodigehalli Sub Division
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Technical Manager

Lab ID : **CP-RW-2024-01-29-16** **Date: 18-01-24**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	47	47	9.8	90.2	71-95
13.2	55	102	21.3	78.7	56-80
4.75	180	282	58.9	41.1	38-54
2.36	50	332	69.3	30.7	28-42
0.3	55	387	80.8	19.2	7-21
0.075	63	450	93.9	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	50	50	10.4	89.6	71-95
13.2	145	195	40.7	59.3	56-80
4.75	90	285	59.4	40.6	38-54
2.36	52	337	70.3	29.7	28-42
0.3	60	397	82.8	17.2	7-21
0.075	55	452	94.3	5.7	2-8

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Technical Manager

End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

TEST RESULTS OF GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 12-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-01-24
Type of Mix	:	BC-Plant (Bituminous Concrete)
Date of Test	:	10-01-24
Oven Dry Weight	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	89	89	1.8	98.2	90-100
9.5	702	791	15.8	84.2	70-88
4.75	895	1686	33.7	66.3	53-71
2.36	587	2273	45.5	54.5	42-58
1.18	492	2765	55.3	44.7	34-48
0.6	503	3268	65.4	34.6	26-38
0.3	528	3796	75.9	24.1	18-28
0.15	458	4254	85.1	14.9	12-20
0.075	350	4604	92.1	7.9	4-10
PAN	396	5000	100	0.0	0

* The results obtained are satisfactory as per standard requirements.

Note:-
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Asst Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

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Technical Manager

End of Report

TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 13-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-01-24
Type of Mix	:	BC(Bitumenous Concrete)
Date of Test	:	10-01-24

Type of Binder	:	60/70
% of Binder Used	:	5.4%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.8 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	98.5	1.5	98.3	Minimum Retained Coating 95%
2	98.5	1.5		
3	98.0	2.0		

* The results obtained are satisfactory as per standard requirements.

Note:-
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Authorized Signatory
Technical Manager

****End of Report****

PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 13-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	10-01-24
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	10-01-24

Table 500-16 : Physical Requirements fo Coarse Aggregate for Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	12.4	Combined Flakiness & Elongation Index for BC is Maximum 35%	IS:2386 Part I
	Elongation Index	11.8		
Strength	Aggregate Impact Value	22.1	Maximum 24%	IS:2386 Part IV
Specific gravity	Specific gravity	2.68	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.21	Maximum 2%	IS:2386 Part III

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Vidyaranyapuram Sub Division
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End of Report

TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 13-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	10-01-24
Type of Mix	:	BC (Bituminous Concrete)
Date of Test	:	10-01-24

The results of the tests conducted on the Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-11
1	Marshal Stability at 60°C, KN	11.14	11.13	10KN(min)
2	Marshal flow at 60°C, mm	3.52	3.51	2-4
3	Percent air Voids	4.82	4.83	3-5
4	Percent Voids in mineral Aggregate(VMA %)	14.28	14.26	13-15
5	Percent Voids filled with Bitumen(VFB %)	71.87	71.63	65-75
6	Density, g/cc	2.25	2.26	–

* The results obtained are satisfactory as per standard requirements.

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Kodigehalli Sub Division
BBMP, Bangalore

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Technical Manager

End of Report

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2024-01-29-16** **Date: 19-01-24**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)

Agency : M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.

Customer Reference : BBMP/EE/BTP/WO/02/2023-24

Source of Sample : Sample supplied by Agency

Date of Receipt : 18-01-24

Type of Mix : BC (Bituminous Concrete)

Date of Test : 18-01-24

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	5.50	5.40
7	Average percentage	%	5.45	

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Technical Manager

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

Lab ID : CP-RW-2024-01-29-16 Date: 19-01-24

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	47	444	93.6	6.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	8	8	1.7	98.3	90-100
9.5	58	66	13.9	86.1	70-88
4.75	110	176	37.1	62.9	53-71
2.36	90	266	56.0	44.0	42-58
1.18	35	301	63.4	36.6	34-48
0.6	20	321	67.6	32.4	26-38
0.3	41	362	76.2	23.8	18-28
0.15	50	412	86.7	13.3	12-20
0.075	35	447	94.1	5.9	4-10

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

End of Report

Assistant Executive Engineer
Kodigehalli Sub Division
Bmrcl, Bangalore

DETERMINATION OF RATE OF SPREAD TACK COAT

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 19-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Sample Condition	:	Satisfactory
Date of Receipt	:	18-01-24
Type of Mix	:	Tack coat
Date of Test	:	18-01-24

Sl.No	Determination	Unit	TEST 1	TEST 2
1	Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30
2	Area of Plate (a)	Sq.mtr	0.09	0.09
3	Initial Wt of empty Plate (b)	Kg	0.78	0.748
4	Final weight of plate after application of tack Coat (c)	Kg	0.803	0.771
5	Weight of tack Coat (d=c-b)	Kg	0.023	0.023
6	Rate of spread of tack coat	Kg/sq.m	0.256	0.256
7	Average	Kg/sq.m	0.256	
8	Specified Limit	Kg/sq.m	0.250 Kg/sq.m	

* The results obtained are satisfactory as per standard requirements.

Note:-

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HIGHWAY & BUILDING MATERIALS TESTING LABORATORY | STRUCTURAL | ENVIRONMENTAL
WATER TESTING | GEO TECHNICAL | PROJECT MANAGEMENT | SURVEYING SERVICES

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2024-01-29-16** **Date: 18-01-24**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub Division, BBMP, Bangalore.
Project Name	:	Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)
Agency	:	M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.
Customer Reference	:	BBMP/EE/BTP/WO/02/2023-24
Date of Receipt	:	17-01-24
Type of Mix	:	DBM (Dense Bituminous Macadam)
Date of Test	:	17-01-24

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	479	479.5
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1} \times 100$	4.60	4.50
7	Average percentage	%	4.55	

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

Assistant Executive Engineer
Kodigehalli Sub Division
BBMP, Bangalore

Lab ID : **CP-RW-2024-01-29-16** **Date: 18-01-24**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 479

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	47	47	9.8	90.2	71-95
13.2	55	102	21.3	78.7	56-80
4.75	180	282	58.9	41.1	38-54
2.36	50	332	69.3	30.7	28-42
0.3	55	387	80.8	19.2	7-21
0.075	63	450	93.9	6.1	2-8

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 479.5

IS Sieve Size(mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Specification Limits as per MORTH specification Table 500-10(grading -2)
37.5	0	0	0.0	100.0	100
26.5	0	0	0.0	100.0	90-100
19	50	50	10.4	89.6	71-95
13.2	145	195	40.7	59.3	56-80
4.75	90	285	59.4	40.6	38-54
2.36	52	337	70.3	29.7	28-42
0.3	60	397	82.8	17.2	7-21
0.075	55	452	94.3	5.7	2-8

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R RUDRAPRASAD
Authorized Signatory
Technical Manager

End of Report

Assistant Executive Engineer
Kadugodi Sub Division
BMRCL, Bangalore

TEST RESULTS OF BITUMEN BINDAR CONTENT AND GRADATION FOR BC
IS 2386 (Part 1) 1963 (RA 2011)

Lab ID : **CP-RW-2024-01-29-16** **Date: 19-01-24**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub Division, BBMP, Bangalore.

Address : Vidyaranyapura Sub Division, BBMP, Bangalore.

Project Name : Improvements to Roads and Drains at Telecom Layout Roads and Surrounding areas in Ward No.13, (Doddabommasandra) (Call-2)

Agency : M/s Sri Maruthi Enterprises, Smt. Shashikala, Jinkebachahalli, Doddatumakuru, Doddaballapura, Bengaluru-561203.

Customer Reference : BBMP/EE/BTP/WO/02/2023-24

Date of Receipt : 18-01-24

Type of Mix : BC (Bituminous Concrete)

Date of Test : 18-01-24

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	W1	500	500
2	Weight of the sample After extraction	W2	474.5	475
3	Initial weight of Paper	W3	4	4
4	Final weight of Paper	W4	6	6
5	Increase in weight of Filter Paper	W5=W4-W3	2	2
6	Bitumen percentage	$\frac{W1-W2+W5}{W1}$ X 100	5.50	5.40
7	Average percentage	%	5.45	

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FOR CIVIL Pro.

R RUDRAPRASAD
Authorized Signatory
Technical Manager

Assistant Executive Engineer
Vidyaranyapura Sub Division
BBMP, Bangalore

Lab ID : **CP-RW-2024-01-29-16** **Date: 19-01-24**

AFTER EXTRACTION - Trail-1

Total Weight of the Sample(gm) : 474.5

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	4	4	0.8	99.2	90-100
9.5	62	66	13.9	86.1	70-88
4.75	112	178	37.5	62.5	53-71
2.36	88	266	56.1	43.9	42-58
1.18	29	295	62.2	37.8	34-48
0.6	11	306	64.5	35.5	26-38
0.3	46	352	74.2	25.8	18-28
0.15	45	397	83.7	16.3	12-20
0.075	47	444	93.6	6.4	4-10

AFTER EXTRACTION - Trail-2

Total Weight of the Sample(gm) : 475

IS Sieve Size (mm)	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Secified limits as per MORTH specification table 500-17(grading-2)
19	0	0	0.0	100.0	100
13.2	8	8	1.7	98.3	90-100
9.5	58	66	13.9	86.1	70-88
4.75	110	176	37.1	62.9	53-71
2.36	90	266	56.0	44.0	42-58
1.18	35	301	63.4	36.6	34-48
0.6	20	321	67.6	32.4	26-38
0.3	41	362	76.2	23.8	18-28
0.15	50	412	86.7	13.3	12-20
0.075	35	447	94.1	5.9	4-10

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Earthquake Sub Division
KSNDMC, Bangalore

End of Report